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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,861

10/01/2004

Dirk Mangler

HM-598PCT

4307

40570

7590

09/02/2008

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EXAMINER

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ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

09/02/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/509,861
Filing Date: October 01, 2004
Appellant(s): MANGLER ET AL.

Friedrich Kueffner
For Appellants

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 16, 2006 appealing from the Office action mailed February 3, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellants' statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellants' statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

GB 1,082,988

MARR et al.

9-1967

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 1,082,988.

As to claims 1 and 5, GB '988 discloses a mold for continuous casting comprising cooling channels (5) in the side of the mold (1) that faces away from the melt contact surface (2), in which the mold is in conformity with the design of the cooling channels (5); the cooling effect of the cooling channels (5) are maximized in the region of the maximum heat flux density. That is, *there exists a certain part of the cooling channels*

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(5) *having maximum heat flux density; the local heat-transfer cooling channel surfaces (5) are adapted varyingly via geometric designs of the heat-transfer surface areas of a cooling channel as shown by different geometric designs in figures 12-17.* The various geometric designs **are capable** to influence the local cooling intensity of a cooling channel. The isoperimetric (constant perimeter) cross-sectional area is decreased by inserting displacement bodies (4); the local cooling intensity can be influenced by arranging cooling channels per unit length of the mold width.

As to claim 2, wherein grooves are additionally introduced to increase heat exchange surfaces in the cooling channels.

As to claim 3, the cooling channels are altered as shown in the figure to influence cooling intensity.

As to claim 4, grooves are produced in the base as shown in the figures to promote cooling intensity.

(10) Response to Argument

As to page 7, 1st full paragraph, the appellants argue that *"the necessity of the local, varying matching of the cooling channel surfaces of a mold to the respectively locally controlling temperature of the mold in the casting direction and therewith to the locally varying necessary heat transfer, was not known to those skilled in the art at the time of GB'988. The Examiner's position that GB'988 discloses the presently claimed invention is at best based on impermissible hindsight. In applicant's opinion, GB'988 makes no disclosure of the presently claimed invention."* The examiner respectfully

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disagrees. GB '988 discloses the claimed invention including cooling channels in the side of the mold, such that the cooling effect of the cooling channel is maximized in the region of the maximum heat flux density, wherein the local heat-transfer cooling channel surfaces are adapted varyingly via geometric design of the heat transfer surface areas of the cooling channel, and its isoperimetric cross-sectional area is decreased by inserting displacement bodies (page 2, lines 14-35, 61-94, and 105-112). The mold of GB '988 inherently includes a cooling channel section in the mold to allow maximum heat flux density. Furthermore, GB '988 discloses inserts (4) (figures 12-17) to decrease the area of the cooling channel while keeping a constant perimeter, hence locally controlling temperature of the mold in the casting direction.

Furthermore, the appellants argue (on page 7, 2nd full paragraph), that GB '988 fails to teach "the local heat-transfer cooling channel surfaces are adapted varyingly via geometric designs of the heat transfer surface areas of a cooling channel". The examiner respectfully disagrees, as GB '988 discloses local heat-transfer **cooling channel surfaces** (page 2, lines 14-20) are adapted varyingly via geometric designs (*the passages 3 with restrictor rod 4, wherein restrictor rod 4 shown in figures 12-17 has different geometric designs*) of the heat transfer surface area (*different restrictor rod 4 geometric design results in different heat transfer areas*) of a cooling channel. Therefore, GB '988 discloses the claimed invention as claimed.

As to page 8, last paragraph, and page 9, 1st paragraph, appellants indicated that figure 9 of appellants' invention shows maximum heat flux density Q_{max} or T_{max} in the region under the molten metal level and in adapting to the heat flux density, variable by

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the number, form, or depth of the cooling channel grooves. The examiner would like to point out that GB '988 discloses that **Qmax and Tmax inherently exists** in the region under the molten metal level, since solidification occurs further down the mold, where heat is dropped due to cooling channels. GB '988 discloses (on page 2, lines 106-111) that the plug 4 can be replaced to give different cross-sectional areas of the water channels. Hence, different cross-sectional areas result in a change in heat flux density. Since the appellants fail to claim specifically where Qmax and Tmax occur, the mold of GB '988 inherently has a Qmax and Tmax position. Therefore, GB '988 discloses the claimed invention as claimed. As a result, the 35 USC 102(b) rejections of claims 1-5 should be sustained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kevin P. Kerns/
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